

VLAD A. EIDELMAN

www.linkedin.com/in/veidelman
scholar.google.com/citations?user=6RoBToYAAAAAJ&hl

vladimir dot eidelman at gmail dot com
machineopinings.com

EDUCATION

University of Maryland, College Park, MD 2008-2013
Ph.D. in Computer Science
M.S. in Computer Science (GPA: 3.80) 2008-2010
Dissertation: *Improved Online Learning and Modeling for Feature-Rich Discriminative Machine Translation*
Advisor: Philip Resnik

Columbia University, New York, NY 2004-2008
B.S. in Computer Science, Minor in Philosophy
Honors: *Magna Cum Laude* (GPA: 3.84)
Advisor: Kathleen R. McKeown

RESEARCH INTERESTS

Natural Language Processing, Machine Learning, Large-Scale Data Analysis, Statistical Machine Translation, Computational Social Science, Explainable Machine Learning, Artificial Intelligence

HONORS AND AWARDS

National Defense Science and Engineering Graduate Fellowship (NDSEG) 2010
▪ 200 awarded from 2,600 applicants to individuals who have demonstrated the ability and special aptitude for advanced training in science and engineering

National Science Foundation Graduate Research Fellowship (NSF GRFP) 2010
▪ 2,000 awarded from 12,000 applicants to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in STEM

John D. Gannon Research Award – Computer Science, University of Maryland 2009
▪ 3 awarded to 1st year Ph.D. students

Block Grant Fellowship – Computer Science, University of Maryland 2008

Theodore R. Bashkow Award – Computer Science, Columbia University 2008
▪ 1 awarded to Computer Science senior who has excelled in independent projects

Dean's List – Columbia University 2004-2007

Comcast Leaders and Achievers Scholarship 2004

Maryland Distinguished Scholar Semifinalist 2004

PROFESSIONAL EXPERIENCE

FiscalNote Inc., Washington, DC 12/2013-present
Joined as 9th employee, developed first version of patented machine learning product applications and helped secure over \$200 million in funding and grow business from pre-revenue to over 4,000 customers. Grew the Research and Data Operations department to 40 people responsible for AI

Research, Data Engineering, Data Operations, and Business Intelligence to serve operational and product data and analytical capabilities.

Vice President of Research

09/2014-present

Senior Principal Scientist

12/2013-08/2014

- Lead all stages of research and development, from ideation to production deployment, of building data products that analyze, model, and extract knowledge from mostly unstructured external and internal open and proprietary data related to government, policy, law, news, and social media
 - Developed and deployed first version of machine learning enabled features including hierarchical multiclass multilabel text classification, forecasting models, and large scale textual similarity. Other projects include entity extraction, graph analysis, keyphrase extraction, stance detection, sentiment analysis, natural language interaction, conversational systems, and information retrieval.
 - Methods include binary, multilabel, and multiclass classification, sequence labeling, generalized linear models, neural networks.
 - Developed libraries and APIs for serving output at scale and guided development of computing infrastructure and data pipelines.
- Hire and manage Research and Data Science team consisting of 6 FTE ML/NLP scientists and engineers by designing and executing on recruiting, interviewing, onboarding, and a continuous growth and development process
 - Created and implemented process for experimental development to allow research team to maintain autonomy and experimental cadence while creating alignment and transparency with stakeholders.
- Develop and communicate research vision, strategy and performance metrics, including evaluating quality and performance of algorithms and models, to all departments and executives with an understanding of impact on business
- Collaborate closely with Product and Engineering leadership and teams to drive innovation in product development roadmap, identify pain points and research based solutions, and set guidance for product execution
- Represent R&D capabilities to support operational teams: Business Development through executive sponsorship of accounts, customer facing interaction, and leading major technical partnership initiatives to deliver data and analytics, including with Thomson Reuters and S&P, Marketing through go-to-market content creation and event participation, Corporate Development through outward technical due diligence for M&A, Finance through representing FiscalNote for investor diligence and helping to secure over \$200 million in funding from Series A onward, and partnerships through collateral and prototyping
- Lead patenting strategy and drafting of technical descriptions, authored 12 patent applications, resulting in 6 granted and 5 active
- Actively participate in research community through reviewing and publishing papers in top-tier ML/NLP conferences and speaking events. Work featured in media such as Wired, Vice News, Washington Post and Newsweek.

University of Maryland, College Park, MD

07/2008-12/2013

Graduate Research Assistant, Department of Computer Science and the Laboratory for Computational Linguistics and Information Processing at the Institute for Advanced Computer Studies

- Conducted research and published papers on a variety of topics in natural language processing and machine learning, including sequence labeling, clustering, topic modeling, and machine translation

Raytheon BBN Technologies, Cambridge, MA

10/2012-07/2013

Speech, Language & Multimedia Technologies Research Intern

- Developed semantically oriented and neural translation models

Johns Hopkins University, Baltimore, MD

06/2010-08/2010

Graduate Research Assistant, Center for Language & Speech Processing, Summer Workshop on Models of Synchronous Grammar Induction for SMT

- Implemented online large-margin structured learning algorithm for cost-augmented inference

The Johns Hopkins University Applied Physics Laboratory, Laurel, MD 06/2008-08/2008

Applied Information Sciences Department Intern

- Contributed to developing a measurement agent for runtime software integrity verification

Columbia University, New York, NY 01/2007-01/2008

Research Assistant, Natural Language Processing Group

- Created learning algorithm for temporal resolution exploiting article structure and temporal references in text

Johns Hopkins University, Baltimore, MD 05/2007-08/2007

Research Assistant, Center for Language & Speech Processing, Summer Workshop on Exploiting Lexical and Encyclopedic Resources For Entity Disambiguation

- Contributed to the development of BART, the Beautiful Anaphora Resolution Toolkit, a machine-learning based toolkit for coreference resolution

Towson University, Towson, MD 06/2006-08/2006

National Science Foundation Undergraduate Research Fellow

- Explored different statistical models for controlling agent behavior using neural networks

National Security Agency, Linthicum, MD Summer 2003/2004

NSA Gifted and Talented Program Intern

- Experimented with a variety of technology related security topics using software in Unix and Windows environments
- Created and implemented an Intrusion Detection System model

Honeywell TSI, Columbia, MD 09/2003-01/2004

Datalynx Programming Intern

- Developed software for Windows/Unix environments to process and visualize data from satellite transmissions

BOARD MEMBERSHIPS

GlobalWonks, Washington, DC 11/2019-present

Advisory Board Member, Senior Advisor on Machine Learning

TEACHING EXPERIENCE

University of Maryland, College Park, MD Spring 2011

Teaching Assistant, Department of Computer Science, Computational Linguistics II

- Graded homework assignments and exams
- Designed and presented lecture on Maximum Entropy modeling and CRFs

Technology Instruction Corp., Bethesda, MD 06/2005-08/2005

Computer Programming Instructor

- Educated students in AI concepts for game programming in MW Logo, VB, and C++
- Guided students in creating final project in chosen technical language

REFEREED CONFERENCE PUBLICATIONS

1. **V. Eidelman** and B. Grom. Argument Identification in Public Comments from eRulemaking. In *Seventeenth International Conference on Artificial Intelligence and Law (ICAIL)*, Montreal, QC, June 17–21, 2019
2. **V. Eidelman**, A. Kornilova, and D. Argyle. How Predictable is Your State? Leveraging Lexical and Contextual Information for Predicting Legislative Floor Action at the State Level. In *Proceedings of the 27th International Conference on Computational Linguistics (COLING)*, Sante Fe, NM, 20-25 August, 2018
3. Kornilova, D. Argyle, and **V. Eidelman**. Party Matters: Enhancing Legislative Embeddings with Author Attributes for Vote Prediction. In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (ACL)*, Melbourne, Australia, 15-20 July, 2018
4. Y. Hu, K. Zhai, **V. Eidelman**, and J. Boyd-Graber. Polylingual Tree-Based Topic Models for Translation Domain Adaptation. In *Proceedings of the Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (ACL)*, Baltimore, MD, 22-27 June 2014
5. **V. Eidelman**, K. Wu, F. Ture, P. Resnik, and J. Lin. Mr. MIRA: Open-Source Large-Margin Structured Learning on MapReduce. In *Proceedings of the 51th Annual Meeting of the Association for Computational Linguistics (ACL)*, Sofia, Bulgaria, 4-9 August, 2013
6. **V. Eidelman**, Y. Marton, and P. Resnik. Online Relative Margin Maximization for Statistical Machine Translation. In *Proceedings of the 51th Annual Meeting of the Association for Computational Linguistics (ACL)*, Sofia, Bulgaria, 4-9 August, 2013
7. **V. Eidelman**. Unsupervised Feature-Rich Clustering. In *Proceedings of the 24th International Conference on Computational Linguistics (COLING)*, Mumbai, India, 10-14 December, 2012
8. **V. Eidelman**, J. Boyd-Graber, and P. Resnik. Topic Models for Dynamic Translation Model Adaptation. In *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics (ACL)*, Jeju, Korea, 9-11 July, 2012
9. **V. Eidelman**, Z. Huang, and M. Harper. Lessons Learned in Part-of-Speech Tagging of Conversational Speech. In *Proceedings of the 2010 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Cambridge, Massachusetts, 9-11 October, 2010
10. C. Dyer, A. Lopez, J. Ganitkevitch, J. Weese, F. Ture, P. Blunsom, H. Setiawan, **V. Eidelman**, and P. Resnik. cdec: A Decoder, Alignment, and Learning Framework for Finite-State and Context-Free Translation Models. In *Proceedings of the Association for Computational Linguistics (ACL)*, Uppsala, Sweden, 11-16 July, 2010
11. Z. Huang, **V. Eidelman**, and M. Harper. Improving A Simple Bigram HMM Part-of-Speech Tagger by Latent Annotation and Self-Training. In *Proceedings of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL-HLT)*, Boulder, Colorado, 1-3 June, 2009
12. Y. Versley, S. Ponzetto, M. Poesio, **V. Eidelman**, A. Jern, J. Smith, X. Yang, and A. Moschitti. BART: A Modular Toolkit for Coreference Resolution. In *Proceedings of the 46th Annual Meeting of the Association for Computational Linguistics (ACL)*, Columbus, Ohio, 16-18 June, 2008
13. Y. Versley, S. Ponzetto, M. Poesio, **V. Eidelman**, A. Jern, J. Smith, X. Yang, and A. Moschitti. BART: A Modular Toolkit for Coreference Resolution. In *Proceedings of the 6th International Conference on Language Resources and Evaluation (LREC)*, Marrakech, Morocco, 28-30 May, 2008

REFEREED WORKSHOP PUBLICATIONS

1. A. Kornilova and **V. Eidelman**. BillSum: Automatic Summarization Corpus for U.S. Congressional Legislation. In *Proceedings of the EMNLP 2019 Workshop on New Frontiers in Summarization*. Hong Kong, China, 4 November 2019
2. Y. Hu, K. Zhai, **V. Eidelman**, and J. Boyd-Graber. Topic Models for Translation Model Adaptation. In *Proceedings of the NIPS 2013 workshop on Topic Models: Computation, Application, and Evaluation*. Lake Tahoe, CA, 9-10 December 2013

3. **V. Eidelman**, K. Wu, F. Ture, P. Resnik, and J. Lin. Towards Efficient Large-Scale Feature-Rich Statistical Machine Translation. In *Proceedings of the Eighth Workshop on Statistical Machine Translation (WMT)*, Sofia, Bulgaria, 8-9 August, 2013
4. **V. Eidelman**. Optimization Strategies for Online Large-Margin Learning in Machine Translation. In *Proceedings of the Seventh Workshop on Statistical Machine Translation (WMT)*, Montreal, Canada, 7-8 June, 2012
5. **V. Eidelman**, K. Hollingshead, and P. Resnik. Noisy SMS Machine Translation in Low-Density Languages. In *Proceedings of the Sixth Workshop on Statistical Machine Translation*, Edinburgh (WMT), UK, 30-31 July, 2011
6. C. Hu, P. Resnik, Y. Kronrod, **V. Eidelman**, O. Buzek, and B. Bederson. The Value of Monolingual Crowdsourcing in a Real-World Translation Scenario: Simulation using Haitian Creole Emergency SMS Messages. In *Proceedings of the Sixth Workshop on Statistical Machine Translation (WMT)*, Edinburgh, UK, 30-31 July, 2011
7. **V. Eidelman**, C. Dyer, and P. Resnik. The University of Maryland Statistical Machine Translation System for the Fifth Workshop on Machine Translation. In *Proceedings of the Joint Fifth Workshop on Statistical Machine Translation and Metrics MATR (WMT)*, Uppsala, Sweden, 15-16 July, 2010
8. **V. Eidelman**. Inferring Activity Time in News through Event Modeling. In *Proceedings of the Association for Computational Linguistics (ACL) Student Research Workshop*, Columbus, Ohio, 16-18 June, 2008

REFERRED CONFERENCE PRESENTATIONS

1. M. Livermore, O. Lam, and **V. Eidelman**. Political Shifts and Public Responses to Agency Action. *American Political Science Association (APSA)*, August, 2019
2. D. Argyle, A. DeStefano, and **V. Eidelman**. Common Space Ideal Point Estimation for State Legislators Using Text Similarity. *Midwest Political Science Association (MPSA)*, April, 2019
3. D. Argyle, P. Resnik, and **V. Eidelman**. Using Ideal Point Models to Characterize Political Reactions in Non-Political Actors. *Seventh Annual New Directions in Analyzing Text as Data (TADA)*. Oct. 2016

INVITED TALKS

1. Keynote: Cutting Through The Hype of AI. *Specialized Information Publishers Association (SIPA) 43rd Annual Conference*. June 2019.
2. Closing Keynote: What will Communicating with Congress Look Like Five Years from Now? *Buzz Advocacy Summit*. Aug. 2019.

JOURNAL ARTICLES

1. M. Livermore, B. Grom and **V. Eidelman**. Computationally Assisted Participatory Rulemaking. 93 *Notre Dame Law Review*. 2018
2. G. Trajkovski, G. Stojanov, S. Collins, **V. Eidelman**, C. Harman, and G. Vincenti. Cognitive Robotics and Multiagency in a Fuzzy Modeling Framework. *International Journal of Agent Technologies and Systems*. 1(1):50-73, 2009

BOOK CHAPTERS

1. **V. Eidelman**, B. Grom and M. Livermore. "Computationally Assisted Participatory Rulemaking." *Law as Data*. Santa Fe: SFI Press, 2019.
2. **V. Eidelman**, A. Kornilova and D. Argyle. "Predicting Legislative Floor Action" *Law as Data*. Santa Fe: SFI Press, 2019.

TECHNICAL REPORTS

1. **V. Eidelman**. Unsupervised Feature-Rich Clustering. CS-TR-5019, UMIACS-TR-2012-14, University of Maryland, College Park, December 2012
2. P. Blunsom, C. Callison-Burch, T. Cohn, C. Dyer, J. Graehl, A. Lopez, J. Botha, **V. Eidelman**, T. Nguyen, Z. Wang, J. Weese, O. Buzek, D. Chen. *2010 Language Engineering Workshop Models for Synchronous Grammar Induction Final Report. Technical Report for CLSP Workshop*, Johns Hopkins University, 2010
3. M. Poesio, D. Day, R. Arstein, J. Duncan, **V. Eidelman**, C. Giuliano, R. Hall, J. Hitzeman, A. Jern, M. Kabadjov, G. Mann, P. McNamee, A. Moschitti, S. Ponzetto, J. Smith, J. Steinberger, M. Strube, J. Su, Y. Versley, X. Yang, and M. Wick. *ELERFED : Final Report. Technical Report for CLSP Workshop*, Johns Hopkins University, 2007
4. **V. Eidelman** and G. Trajkovski. Extension of an Algebraic Model of Cognition to a Congruent Continuous Model. *Technical Report for NSF REU*, Towson University, 2006

WORKING PAPERS

1. D. Argyle, L. Argyle, P. Resnik, and **V. Eidelman**. Ideal Point Estimation using Real-Time Presidential Debate Reactions.
2. M. Livermore, O. Lam, and **V. Eidelman**. Political Shifts and Public Response to Agency Action.

PATENTS

1. **V. Eidelman**, B. Grom, D. Argyle, J. Pinto, and J. Zoshak. 2016. Systems and Methods for Altering Issue Outcomes. U.S. Patent 10181167, filed April 21, 2017 and issued Jan. 15, 2019.
2. B. Palombi, D. Argyle, **V. Eidelman**, J. Pinto, and B. Grom. 2016. Systems and Methods for Analyzing Policymaker Alignment with Organizational Posture. U.S. Patent 10593002, filed April 21, 2017 and issued March. 17, 2020.
3. C. Simpson, D. Hok, J. Zoshak, A. DeStefano, J. Pinto, and **V. Eidelman**. 2016. Systems and Methods for Mapping to Milestones in a Policymaking Process. U.S. Patent Application 10672092, filed April 21, 2017 and issued June 02, 2020.
4. **V. Eidelman**, B. Grom, D. Argyle, and J. Pinto. 2016. Systems and Methods for Steering an Agenda Based on User Collaboration. U.S. Patent Application 15494300, filed April 21, 2017 and issued June 23, 2020.
5. B. Grom, **V. Eidelman**, D. Argyle, J. Pinto, and M. Rios. 2016. Systems and Methods for Correlating Comments and Sentiment to Policy Document Sub-sections. U.S. Patent Application 15494371, filed April 21, 2017 and allowed May 27, 2020.
6. B. Grom, D. Argyle, J. Zoshak, **V. Eidelman**, and D. Maglasang. 2016. Systems and Methods for Providing a Virtual Whipboard. U.S. Patent Application 15494346, filed April 21, 2017 and allowed July 9, 2020.

PATENT APPLICATIONS

1. **V. Eidelman** and D. Argyle. 2018. Systems and Methods for Determining the Impact of Issue Outcomes. U.S. Patent Application 16221410, filed December 6, 2018. Patent Pending.
2. **V. Eidelman**, B. Grom, D. Argyle, and J. Pinto. 2016. Systems and Methods for Predicting Future Event Outcomes Based on Data Analysis. U.S. Patent Application 15494390, filed April 21, 2017. Patent Pending.
3. **V. Eidelman**, B. Grom, D. Argyle, and J. Pinto. 2016. Systems and Methods for Predicting Policymaker Behavior Based on Unrelated Historical Data. U.S. Patent Application 15494310, filed April 21, 2017. Patent Pending.

4. B. Grom, **V. Eidelman**, D. Argyle, and J. Pinto. 2016. Systems and Methods for Predicting Policy Adoption. U.S. Patent Application 15494377, filed April 21, 2017. Patent Pending.
5. D. Argyle, **V. Eidelman**, A. Kornilova, and F. Fallon. 2020. Systems and Methods for Analyzing Policymaker Influence. U.S. Patent Application 16799744, filed Feb. 24, 2020. Patent Pending.

SERVICE

Program Committee Member

- Association for Computational Linguistics (ACL) 2014, 2015, 2016, 2017, 2018, 2019, 2020
- Empirical Methods in Natural Language Processing (EMNLP) 2016, 2018, 2019, 2020
- European Chapter of the Association for Computational Linguistics (EACL) 2014, 2017, 2020
- International Conference on Computational Linguistics (COLING) 2016
- International Conference on Language Resources and Evaluation (LREC) 2010, 2012, 2014, 2016, 2018, 2020
- International Joint Conference on Natural Language Processing (IJCNLP) 2015, 2017, 2020
- North American Chapter of the Association for Computational Linguistics (NAACL) 2013, 2016, 2018, 2019
- International Conference on Machine Learning (ICML) 2020

Journal Reviewing

- Journal of the Association for Information Science and Technology (JASIST)
- International Journal of Computer Mathematics (IJCM)
- ACM Transactions on Information Systems (TOIS)
- Computational Linguistics (CL)

University Service

- Computer Science Graduate Student Executive Council (2008-2013)
- Graduate Student Government Computer Science Program Representative (2010-2011)

Other

- NSF Review Panel 2019, 2020

SKILLS

Languages

- Native: English, Russian
- Beginner: Spanish, German, Turkish

Technologies

- Languages: Python, Perl, C/C++, Java
- Storage: PostgreSQL, MongoDB, S3, Redis, Redshift
- Frameworks: AWS, Apache Mesos, Spark, Hadoop, Chronos
- Tools: scikit-learn, pandas, jupyter, nltk, spaCy, pytorch, keras, git, docker